

REMARKS

This amendment, Paper Dated February 21, 2006, is submitted in response to the Official Action dated October 19, 2005. A complete listing of all claims ever presented in the case, and their status, is included. Applicant would like to note that although the Office Action Summary indicates claims 1-19 are pending and claims 1-19 are rejected, there were originally only 18 claims in the Application. However, this Paper presents new claim 19.

The Specification

No amendments to the specification have been made.

The ClaimsDouble Patenting warning

Claims 2 and 17 have been canceled. Therefore, there is no double patenting. No new matter has been added.

Claim Objections

Claim 17 has been canceled. Claim 12 has been amended and presents proper antecedent basis. Claim 12 recites a "biological stimulant" throughout. Thus, the objections have been overcome and Applicant respectfully requests withdrawal of the objections. No new matter has been added.

35 USC § 112, second paragraph

Claims 12-18 are rejected under 35 USC § 112, second paragraph as failing to distinctly point out the subject matter which the Applicant regards as his invention. Applicant respectfully traverses this rejection.

Claim 12 has been amended to recite a "biological stimulant" that is an electron donor in reductive dehalogenation processes. Therefore any confusion with respect to a "reductive halogenation composition" has been removed and the rejection has been overcome. Thus, Applicant respectfully requests withdrawal of the rejection. No new matter has been added.

35 USC § 102(b)

Claims 1, 5-7 and 12-14 are rejected under 35 USC § 102(b) as being anticipated by US Patent No. 5,756,132 to Rebhan. Applicant respectfully traverses these rejections.

Examiner asserts that Rebhan teaches a dry, water-dispersible milk replacement for calves, comprising brewer's yeast, dextrose, lactose, lard, and vegetable fats (which Examiner says Applicant calls fatty acids and vegetable oils). Examiner then asserts that although Rebhan does not teach the milk replacement as a biological stimulant for use in bioremediation, the composition comprises the same ingredients as claimed in the current application, and that therefore it inherently has the same electron donor properties as the claimed.

Applicant respectfully traverses the rejection. Claims 1 and 12 have been amended to recite weight percentages of lactose and Brewer's Yeast. Rebhan does not disclose the weight percentages recited in the present claims. Original claims 2, 17 and 18, which were not subject to this rejection have been canceled.

Therefore, because the present claims recite elements not disclosed by Rebhan, Rebhan does not anticipate the present invention and Applicant respectfully requests that the rejections be withdrawn. No new matter has been added.

35 USC § 103(a)

Keasling

Claims 1-4, 12-13 and 17-18 are rejected under 35 USC § 103(a) as being unpatentable over Keasling et al, US Pat. No. 6,150,157.

Examiner, asserts that Keasling et al. teach a biological stimulant composition for the reductive dehalogenation of organic halides in contaminated groundwater comprising a carbohydrate and a reductive dehalogenation factor in the form of a nutrient extract. The carbohydrate can be lactose, sucrose, or glucose. The reductive dehalogenation factor can be yeast extract.

Examiner then asserts, though Keasling et al. only teach yeast extract, and NOT Brewer's Yeast, that it would have been obvious to one of ordinary skill in the art to use whole yeast cultures instead of yeast extracts to reduce processing steps and costs.

Examiner also asserts that one would expect success using Brewer's Yeast because Keasling et al. teach the genus, yeast, and that therefore all species of yeast comprise the desired reductive dehalogenation factors, as no evidence of unexpected results has been provided.

In addition, though Keasling et al. do not teach anything about specific concentrations or ratios, and though there is only this single reference's teaching, Examiner asserts that concentrations and ratios would be routinely optimized by one of ordinary skill in the art.

Initially, Applicant points out that claims 2, 3, 17 and 18 have been canceled and are thus no longer subject to these rejections.

With respect to the rest of the claims under this rejection, Applicant traverses the rejections and still disagrees with Examiner's assessment of Keasling et al. Examiner correctly points out that Keasling et al. use yeast *extract* vs. Brewer's Yeast. Yet Examiner maintains that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use whole yeast cultures instead of extracts to reduce processing steps and costs.

Applicant still maintains that Keasling et al. in effect teaches away from Brewer's Yeast because Keasling et al. would be of skill in the art, and would certainly have known of the existence of Brewer's Yeast yet specifically chose to omit it. Thus, Keasling et al. does not teach the interchangeability or obviousness of substituting Brewer's Yeast for yeast extract. In addition, as noted, the heat and irradiation processes used in Keasling et al. might in fact damage live Brewer's Yeast cultures. Keasling et al. may well have to use yeast extract. Thus, because Brewer's Yeast is not the same as yeast extract and can not necessarily be treated the same, they are not necessarily obvious substitutes absent some specific teaching, which Keasling et al. do not provide.

Examiner, however, asserts that some of Applicant's arguments are merely arguments of counsel and cites absence of evidence of unexpected results over other yeast species. Examiner simply states that the fact that Keasling et al. does not specifically state that whole Brewer's Yeast can be used does not prevent one of ordinary skill in the art from making the "obvious" substitution of whole yeast for yeast extract. Applicant maintains that the substitution is NOT obvious because whole, live, active Brewer's Yeast is not the same as, nor necessarily an obvious substitute for, yeast extract. This is especially true in applications such as that of Keasling et al. wherein the yeast extract is heated and/or irradiated. Thus, although Brewer's Yeast, was certainly known to Keasling et al., it was specifically not included.

Therefore, in order to support Applicants assertion that Brewer's Yeast and yeast extract are not obviously interchangeable, Applicant attaches a Declaration including substantive experimental evidence showing that Brewer's Yeast provides unexpectedly

superior results for use in reductive dehalogenation versus yeast extract. Applicant's Declaration and experimental data shows that the results are unexpected, unobvious and of both statistical and practical significance.

The attached Declaration and experimental results directly compare Brewer's Yeast and yeast extract in the same, relevant reactions.

As can be seen from the test data, Brewer's Yeast provides and preserves significantly more of the yeast's nutritive value for supporting reductive dehalogenation than use of yeast extract. The two sets of experiments show that much more Brewer's Yeast, versus yeast extract, remains available for use in future reactions such as reductive dehalogenation. The two forms, yeast extract and Brewer's Yeast were directly compared in the same experiments. The unexpectedly greater amount of available Brewer's Yeast has the very practical effect of providing more effective, efficient reductive dehalogenation at significantly lower cost. Yeast extract is approximately 5 times as expensive as Brewer's Yeast initially. As shown by the attached experimental data, significantly more of the nutritional value of the yeast extract is used up immediately on Day One versus Brewer's Yeast. This is shown by the fact that yeast extract yielded or had a 300% greater Biochemical Oxygen Demand on Day One than Brewer's Yeast. Thus, in a practical application, for the same dehalogenation, significantly more yeast extract would have to be used versus Brewer's Yeast, thus making use of yeast extract even more expensive.

Thus, the very great differences in Biochemical Oxygen Demand and Dissolved Organ Carbon show that Brewer's Yeast is unexpectedly and surprisingly much more effective for use in reductive dehalogenation than yeast extract would be. Statistically significantly greater amounts of the nutritional reactive value of Brewer's Yeast are available for reductive dehalogenation versus yeast extract.

Therefore, significant, practical and unexpected results show that Brewer's Yeast and yeast extract are not simply interchangeable for use in compositions and methods for reductive dehalogenation. Thus, Keasling et al. do not teach or suggest use of Brewer's Yeast to result in Applicant's superior composition. Therefore, the rejection has been overcome and Applicant respectfully requests withdrawal of the rejection.

Hince

Claims 5-11 and 14-16 are rejected as being unpatentable over Keasling et al. (US Pat. No. 6,150,157) in view of Hince (US 2002/0090697). Applicant respectfully traverses these rejections.

Examiner asserts the same things in these rejections as in the rejections above. In addition, Examiner asserts that although Keasling et al. do not teach vegetable oil or fatty acids, and nor does their composition have reduced aqueous solubility (nor do they teach or suggest any motivation or reason for having or wanting reduced aqueous solubility), Hince teaches a solid-chemical composition for bioremediation that does include both vegetable oil and fatty acids.

Applicant has shown above, and with the attached Declaration that the use of Brewer's Yeast is unexpectedly superior to the use of yeast extract, for use in the presently claimed compositions and methods. Thus, addition of vegetable oil and/or fatty acids to the teaching of Keasling et al. would not lead one of ordinary skill to Applicant's invention. The specific combination of elements recited in the present claims is not taught or suggested by either cited reference. In addition use of Brewer's Yeast in Applicant's composition has been shown to provide unexpectedly better results versus use of yeast extract.

Therefore, because Applicant's unique composition is not taught or suggested by the cited references, and provides superior, unexpected results versus the yeast extract taught by Keasling et al., the rejection has been overcome and Applicant respectfully requests withdrawal of the rejection.

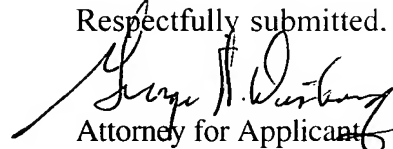
New Claim

New claim 19 has been added to recite a method of enhancing reductive dehalogenation. This claim is neither taught nor suggested by the cited reference.

Conclusion

Applicant has canceled claims 2 and 17. Thus, the double patenting rejection is moot. Applicant has amended claim 12 for consistent antecedent basis, and has deleted claim 17. Thus, the claim objections have been overcome. Applicant has amended claims 1 and 12 to recite weight percentages of lactose/biodegradable sugar and Brewer's Yeast. Thus, the anticipation rejection is overcome. Applicant has presented a Declaration with accompanying explanation and argument to overcome the obviousness rejections. Brewer's Yeast has been shown to be unexpectedly much more bioavailable, practical and useful for reaction, such as reductive dehalogenation, than yeast extract. Thus, the obviousness rejection has been overcome. Therefore, Applicant respectfully requests reconsideration of the Application, and withdrawal of the rejections such that the application is now in condition for allowance. Applicant respectfully welcomes any input or suggestion from Examiner and will work with Examiner towards allowance of this case. Any fees due in connection with this response are included herewith.

Respectfully submitted.


Attorney for Applicant
George W. Dishong
Registration No. 31, 348

George W. Dishong Esq.
DISHONG LAW OFFICE
40 Bryant Road
Jaffrey, NH 03452

Vc 1-603-532-7206; Fx 1-603-532-7303; Email: dishongpatlaw@monad.net